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E. W. Boyer, General Manager

Shields Warren, M.D., Director Division of Riology and Medicine MONTHLY STATUS AND PROGRESS REPORT, MARCH 1952 -DIVISION OF BIOLOGY AND MEDICINE 332

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Transmitted herewith is the Monthly Status and Progress Report for the Division of Biology and Medicine for the month of March, 1952.

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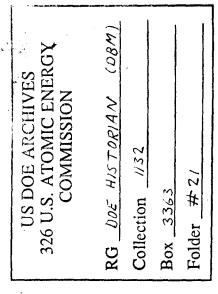
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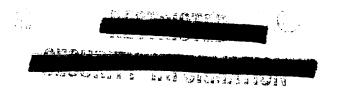
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MONTHLY STATUS AND PROCRESS REPORT DIVISION OF BIOLOGY AND MEDICINE

MONTH OF MARCH 1952

Research Activities

Radiation Effects of Phosphorus. (UNCLASSIFIED) Recent findings by the University of North Caroline in the study of radioactivity in the surrounding water on salamander larvae have been reported by Dr. D. P. Costello. It has been determined that the uptake of P-32 from the water produces choosens breaks (mutations) in dividing skin cells. Thus radioactivity in the water in which aquatic animals live produces changes in their tissues and possible genetic mutations.

At North Carolina State College, a study by Dr. D. S. Grosch is being made of the genetic effects of ingested phosphorus. P-32 is being added to the food of the wasp Habrobracon, and results to date indicate that above 200 microcuries/gram, egg production is decreased and abnormal embryos increase in number. Thus ingested radioactivity such as might result from contaminated food is being shown to produce effects on growth of offspring as well as genetic mutations.

Activity of Fission Products in Adisals. (UNCLASSIFIED) The uptake and deposition of several fission products into the edible tissues and skeleton of cattle have been under investigation at the University of Tennessee project.

It has been shown that protoactinium, tantalum, and lanthamum are poorly absorbed from the gastro-intestinal tract. Less than 0.01 per cent of the ingested amount of each of these elements is retained in the body, and times are not dangerous.

In experiments using strontinm, yearling steers were fed 5 or 10 milliouries of 3-90, and at intervals up to six months were sacrificed in order to determine the activity in the tissues. Activity in the meat was found to be very low, while the concentration in the bones was relatively high. Seven days after intake, approximately 70 per cent of the strontium had been eliminated by renal and feest excretion. In lactating cown over a seven-day period, less than two per cent of the ingested strontium was secreted in the milk. Consumption of the milk

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would be dangerous because strontime would be accessiated in the bones.

Study of Radiation Referts in Dans. (UNGLASSIFIED) The effects of radiation on the physical performance of dogs is being studied at Boston University School of Medicine in order to obtain data extrapolatable to man. Prior to whole body irradiation, the dogs are emiliated on a treaded!! which operates at seven miles per hear. This training improves the physical fitness of the animals and is required for about a two-week period. After this period, the days are given radiation doses of various amounts and a study of the resulting work performance is unde.

In edition, the dogs are also tested by conditioning through a mane pattern. Before Vediction, the dogs could be trained to find successfully the colort patienty which led them out of the mane. Decages of 0, 125, and 250 reentgens were administered, and mental impairment became evident at 125 reentgens, with increased impairment noted at 250 reentgens. Further studies of decages below 125 reentgens are meded in order to determine where impairment begins. Buta of this kind are especially important in evaluating hearest-performance relationship in areas of medear powered submarines and streages.

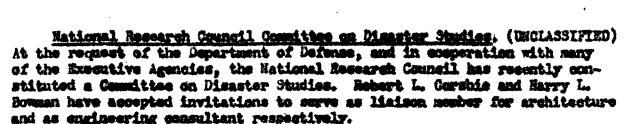
Glinical Gamera. (INGLASSIFIED) A stereoscopic camera for photographing lone and cornea of the human ope has been developed at Home Laboratory of Ophthalmalogy at the Harvard Medical School. This apparatus is a very ingenious device which will be of immediate and practical usefulness in connection with the rediction externet investigations being made of the Japanese medical cases at Hirochima and Magasaki. Radiation exterects can be photographed and a close study made of their development, progress, or regression.

Civil Defense Activities

Applicance to National Security Recourses Read - Machinston Area Dispersal Plan. (and the Parish At the request of the Chairman of the National Security Recourses Board the Civil Refunes Lisiona Branch has been asked to serve on as ad Hes Committee to make recommendations to the freedom: to the dispersal of critical Cacilities new located in the nation's capital.

Data provided by the AEC will be used in the formulation of a set of basic assumptions to be used by executive agencies in testifying before the Congress on the dispersal legislation. (EMD OF RESTRICTED)

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ANG Certifring Office for Federal Civil Defence Training Centers.
(UNCLASSIFIED) At the request of FCDA, the Civil Defence Liaison Branch will serve as a focal point for handling the appointments of ANG Attendeds at the several FCBA training centers.

Industrial Health

1. Health-Physics

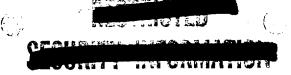
Radiological Physics Fellows were selected on March 7, 1952 from among more than one hundred applicants for training in health-physics work in Consistion and other radiation laboratories. The fellowship course is of one year duration and will begin in September 1952. Twenty-five fellows will study at Vandarbilt University and take field training at the Oak Ridge Bealth physics laboratory. Twenty-two fellows will study at Reghester University and take field training in the Brookhaven health physics laboratory. Previous experience has shown that graduates of these courses are in high demand in the field of health-physics, and a large sajority of them have been placed on AEC projects.

The followship program is administered by the Cak Ridge Institute of Huclear Studies and selections are note by the Radiological Physics Fellowship Board. The Board sonsists of one pepresentative each from Rochester University, Vanderbilt University, Brookhaven Mational Laboratory, Oak Ridge Mational Laboratory, Oak Ridge Institute of Muslear Studies, and the Oak Ridge and Mashington Atomic Energy Counterion offices.

Hentron Symposium. (UNGLASSIFIED) A symposium on the biophysical and biological effects of neutrons, spensored by the Division of Biology and Medicine, met in Washington on March 17-18, 1952.

Discussions which followed the meeting revealed that while present personnel monitoring methods are not entirely estiminatory, usuable portable devices for adequate measurement of neutron flux ever a wide range of energies have been developed. With respect to biological effects, it was agreed that enterest formation in the eye lane, and action on the gonade (sterility and genetic effects) were the writical neutron effects, and that these need evaluation entirely apart from any reference to a permissible exposure limit of 0.3 rem (rountgen-equivalent-man).

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2. Industrial Medicine

Spring Meeting of Industrial Physicians. (UNCLASSIFIED)
Industrial physicians engaged in the atomic energy program will hold a meeting in Rochester, New York, on May 15-16, 1952. The sessions will be held at the Atomic Energy Project, School of Medicine and Dentistry, University of Bachester.

3. Radiation Destruments

Pourth Technical Cooperation Conference, (UNCLASSIFIED)
A Technical Cooperation Conference on Instrumentation is scheduled to be held this year in the United States. Breatheven Mational Laboratory has been selected as the site for the Swarth meeting which is scheduled for June 11, 12, 13, 1952. The Radiation Instrument Branch will be responsible for coordinating all the arrangements for the session. This will be the fourth in a series of susual Tripertite Instrumentation Conferences which have been held successively in Oak Ridge, Chalk River and Harwell for the purpose of exchanging information on Canadian, English and American radiation instrumentation developments.

Scintillation Grystals for Newtones. (UNCLASSIFIED) The scope of the contract with the Harshaw Chemical Company has been expanded to include work on the development of processes and procedures for producing tin activated lithium indide crystals. These crystals show great promise for use in neutron spectroscopy and other neutron measurements in that their sensitivity to thermal neutrons is such greater than most presently existing neutron detectors.

General

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Trinity Site - Alamogorde, New Mexico. (UMCLASSIFIED) Governor Mechem of New Mexico recently pretested the action of the Atomic Energy Commission to dispose of trinitite at the Trinity Site, some of the first atomic bomb detonation. As a result, Dr. J. C. Bugher, Deputy Director of the Division, and Mr. Carroll Tyler, Manager of the Santa Fo Operations Office, met with the Governor in Santa Fo, New Mexico on March 11, 1952. The potential health hazard arising from the decay of trinitite, and the medical-legal problem inherent in the situation were discussed. It was stressed that the Commission was favorable to maintaining all historical features of the site consistent with removal of the potential health hazard. Action will be initiated by the Governor with the Department of the Army/ which has cognisance of the land on which the site exists) and the Sational Park Services.

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to resummend plans in addition to those already contemplated for the preservation of the historic interest of the site. The Governor will also maintain close liaisen with Representative Fernandes who has introduced a bill into Congress for preservation of the site.

In the meantime, the work under a contract to surface the area of the site will be postponed for approximately 30 days.

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